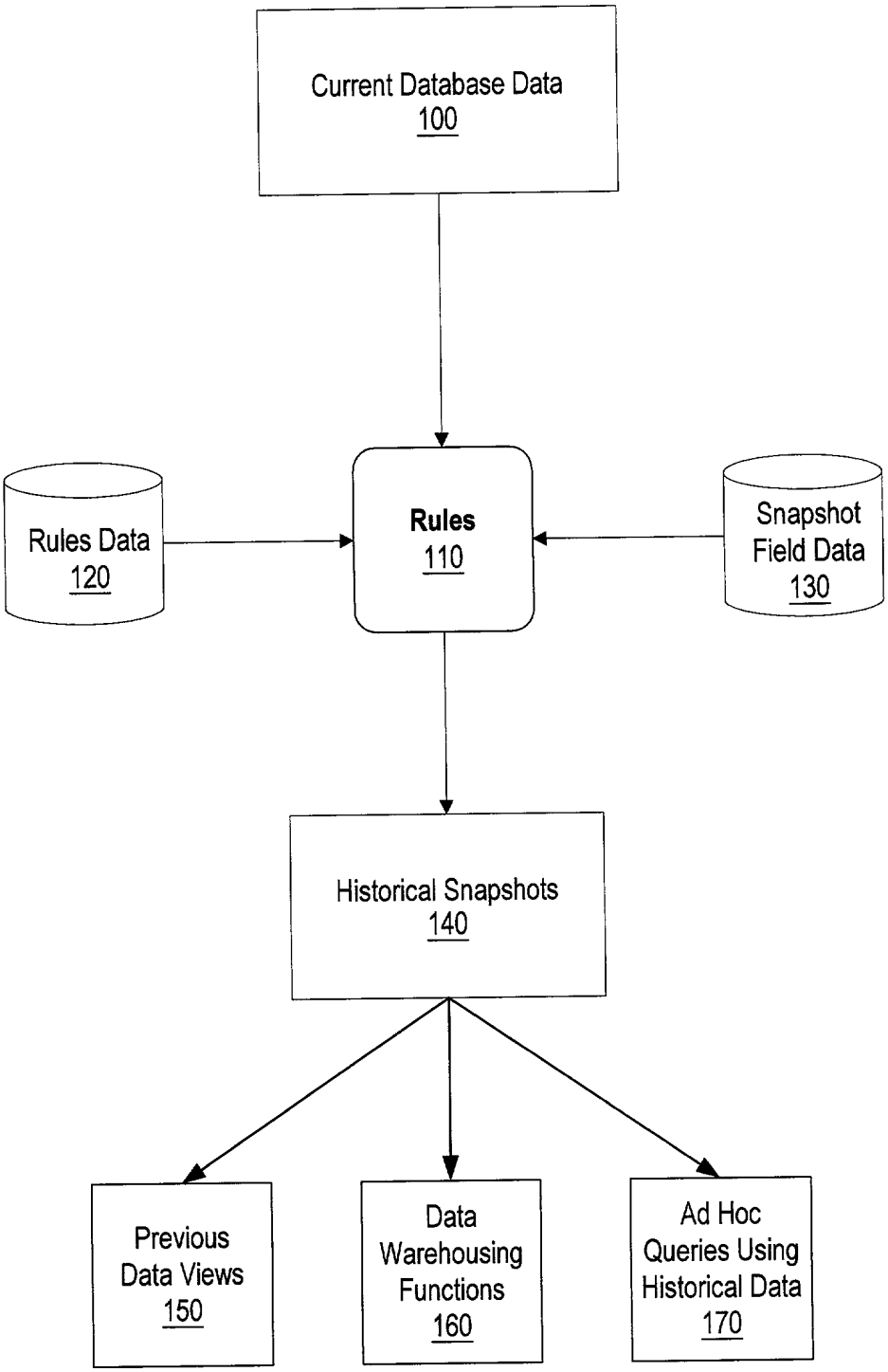
Current Database Data
100
Rules Data
120
Rules
110
Snapshot
Field Data
130
Historical Snapshots
140
Previous
Data Views
150
Data
Warehousing
Functions
160
Ad Hoc
Queries Using
Historical Data
170

Figure 1

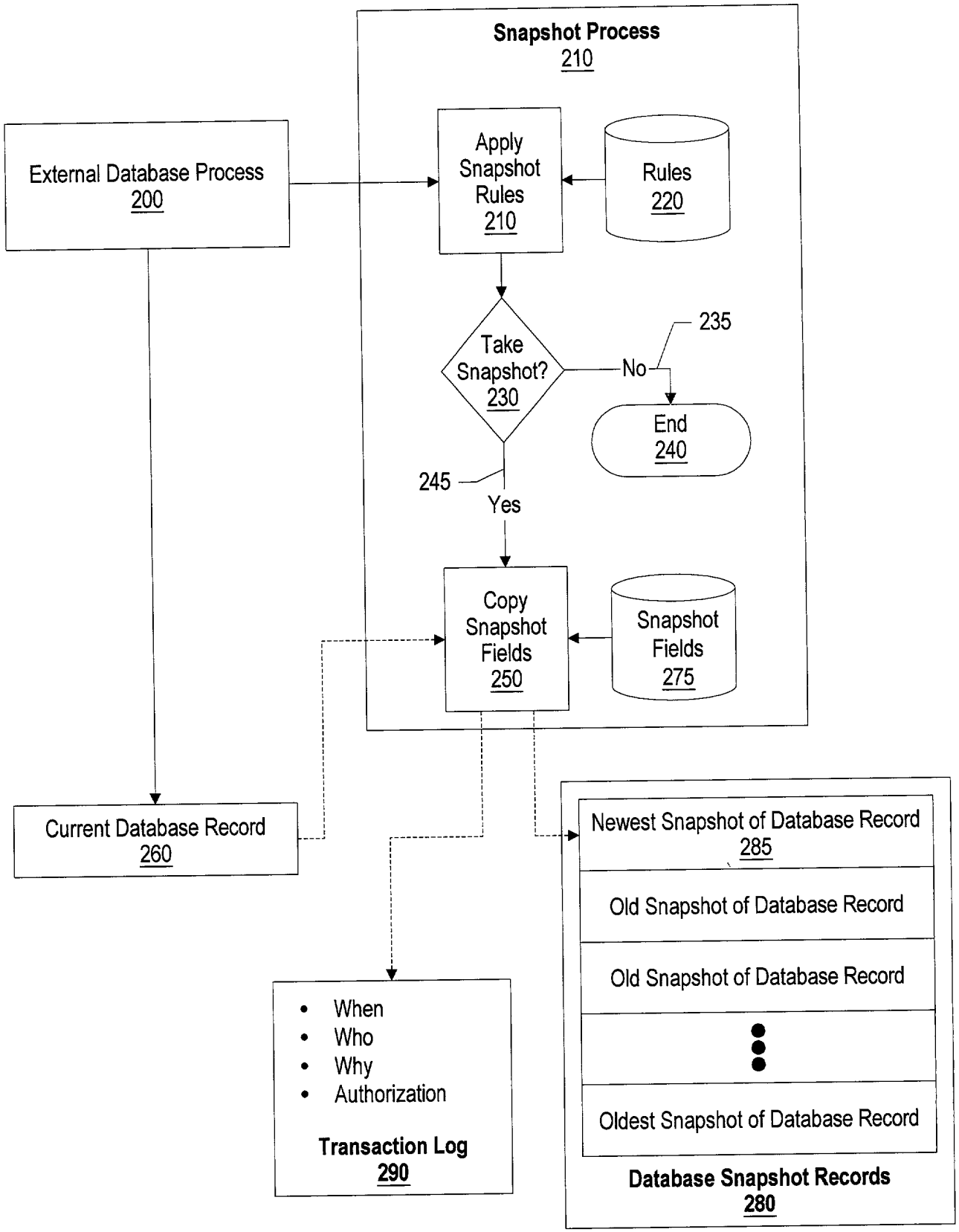
Snapshot Process
210
External Database Process
200
Apply Snapshot Rules
210
Rules
220
Take Snapshot?
230
No
235
End
240
245
Yes
Copy Snapshot Fields
250
Snapshot Fields
275
Current Database Record
260
Newest Snapshot of Database Record
285
Old Snapshot of Database Record
Old Snapshot of Database Record
Oldest Snapshot of Database Record
Database Snapshot Records
280
When
Who
Why
Authorization
Transaction Log
290

Figure 2

Snapshot Rules
300

Field	Snapshot Upon Change?
Account Number	Yes
Last Name	Yes
First Name	Yes
Middle Name	Yes
Street Address	Yes
City	Yes
State	Yes
Zip Code	Yes
Date Last Accessed	No
Date Last Payment Received	No

Snapshot Fields
310

Field
Account Number
Last Name
First Name
Middle Name
Street Address
City
State
Zip Code
* Pointer to Trans. Log Record

Transaction Log Fields
320

Field
Timestamp of Snapshot
Who Caused Snapshot
Reason for Change
Authorization Code
* Pointer to Snapshot Record

Express Mail Label No. EV339045247US

Figure 3

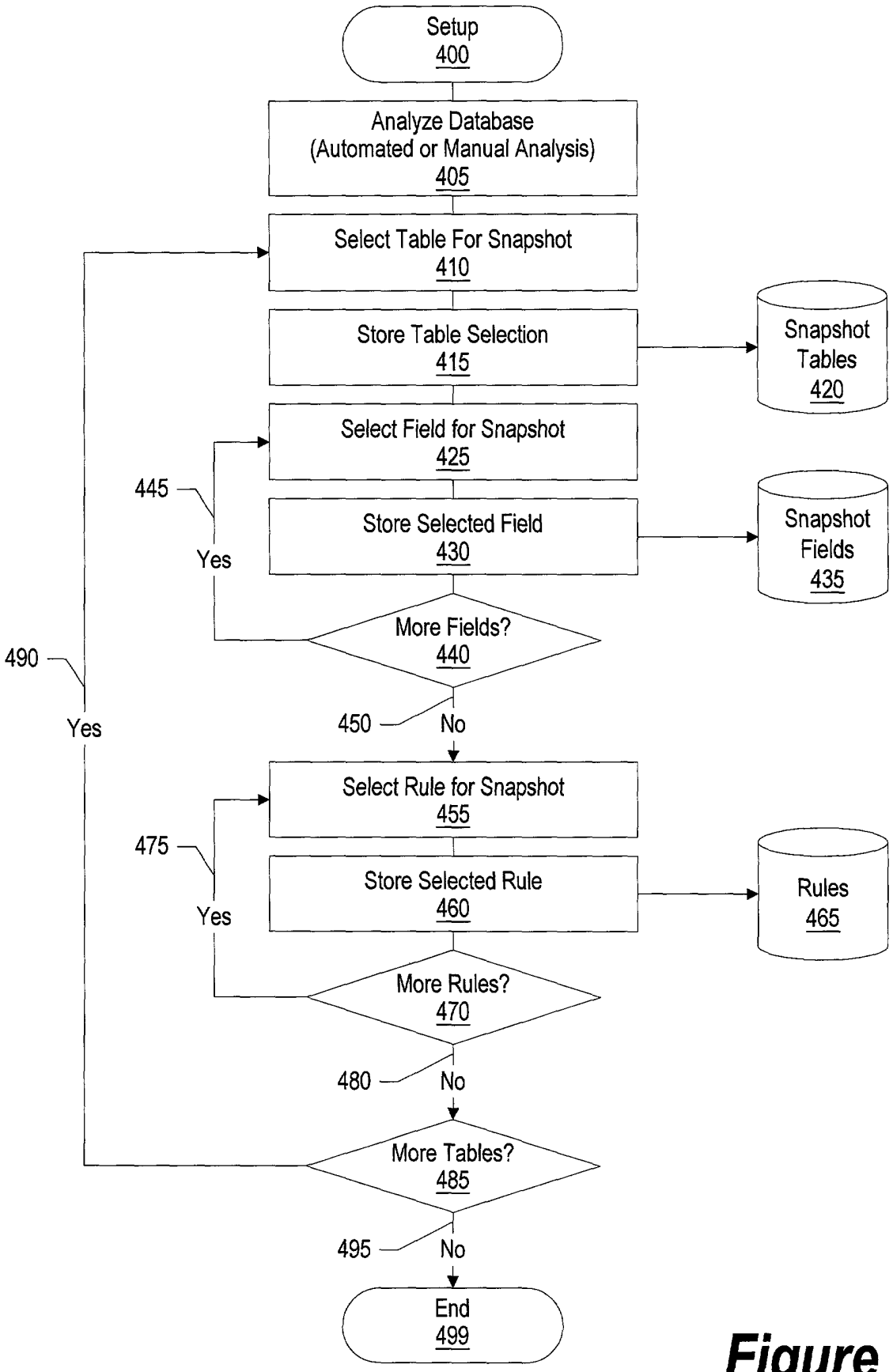
Setup
400
Analyze Database
(Automated or Manual Analysis)
405
Select Table For Snapshot
410
Store Table Selection
415
Snapshot
Tables
420
Select Field for Snapshot
425
445
Store Selected Field
430
Snapshot
Fields
435
Yes
More Fields?
440
490
Yes
450
No
Select Rule for Snapshot
455
475
Store Selected Rule
460
Rules
465
Yes
More Rules?
470
480
No
More Tables?
485
495
No
End
499

Figure 4

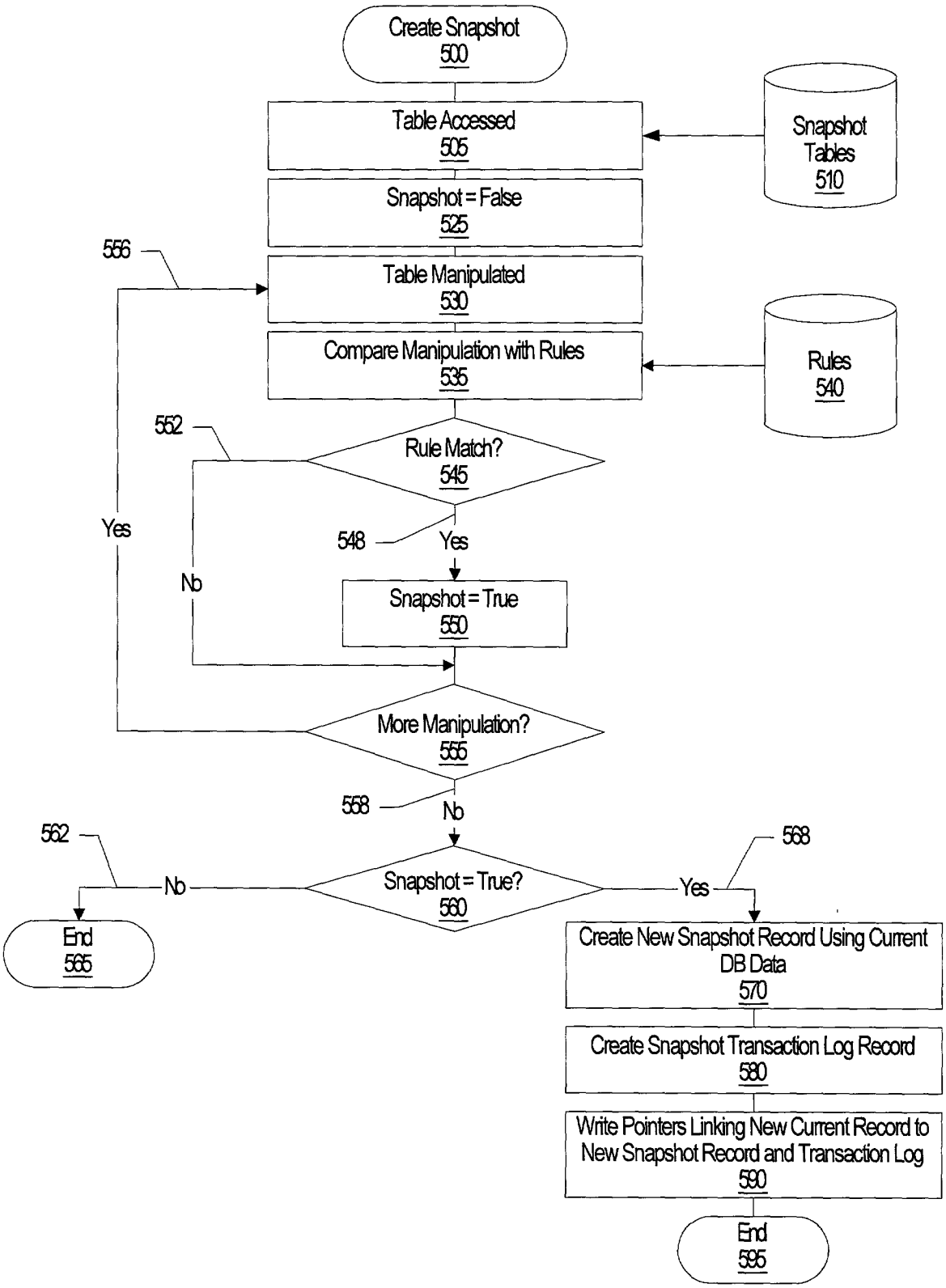
Create Snapshot
500
Table Accessed
505
Snapshot
Tables
510
Snapshot = False
525
556
Table Manipulated
530
Compare Manipulation with Rules
535
Rules
540
552
Rule Match?
545
Yes
548
Yes
No
Snapshot = True
550
More Manipulation?
555
558
No
562
568
No
Snapshot = True?
560
Yes
End
565
Create New Snapshot Record Using Current DB Data
570
Create Snapshot Transaction Log Record
580
Write Pointers Linking New Current Record to New Snapshot Record and Transaction Log
590
End
595

Figure 5

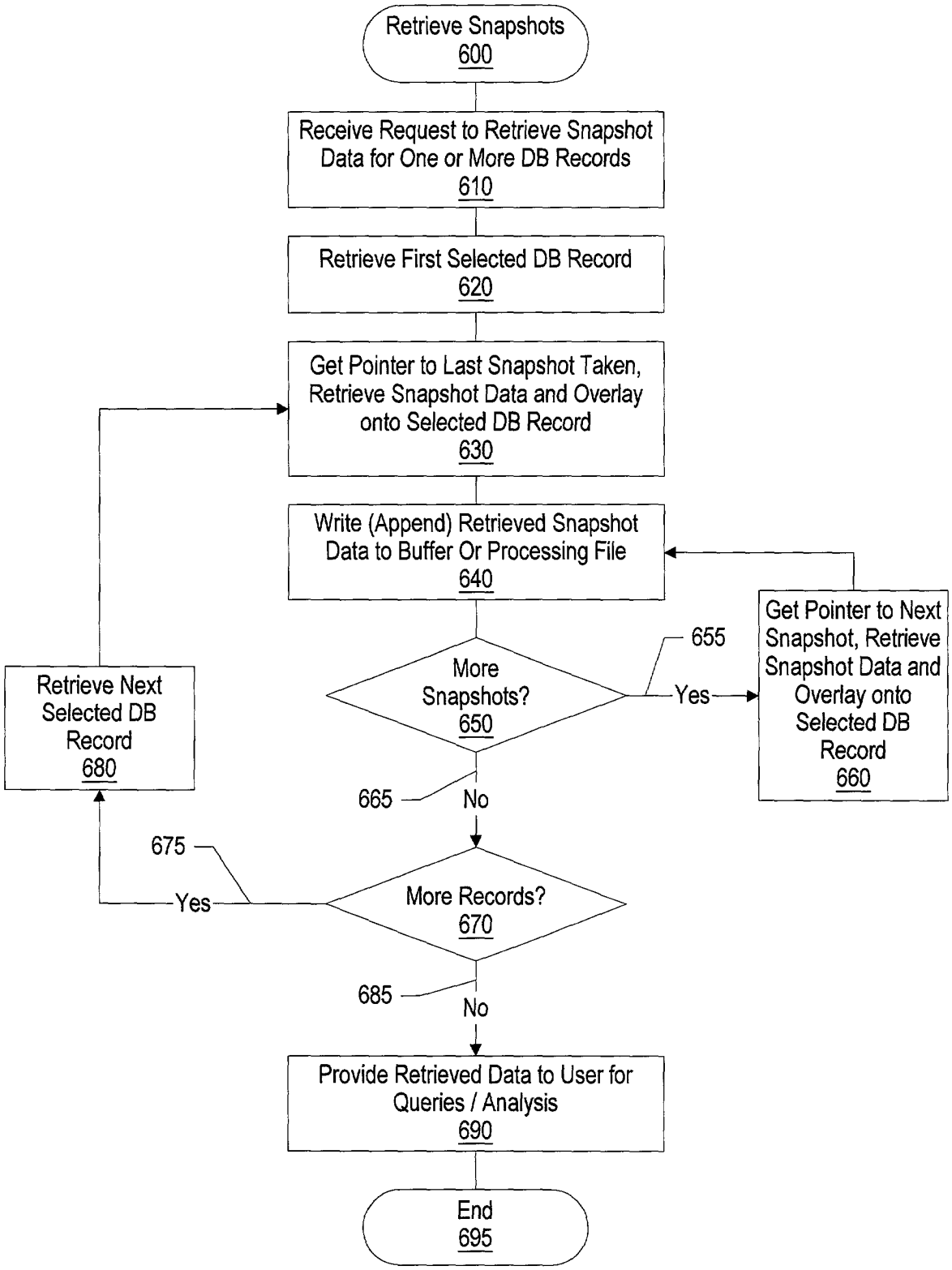
Retrieve Snapshots
600
Receive Request to Retrieve Snapshot Data for One or More DB Records
610
Retrieve First Selected DB Record
620
Get Pointer to Last Snapshot Taken, Retrieve Snapshot Data and Overlay onto Selected DB Record
630
Write (Append) Retrieved Snapshot Data to Buffer Or Processing File
640
More Snapshots?
650
655
Yes
Get Pointer to Next Snapshot, Retrieve Snapshot Data and Overlay onto Selected DB Record
660
665
No
More Records?
670
675
Yes
Retrieve Next Selected DB Record
680
685
No
Provide Retrieved Data to User for Queries / Analysis
690
End
695

Figure 6

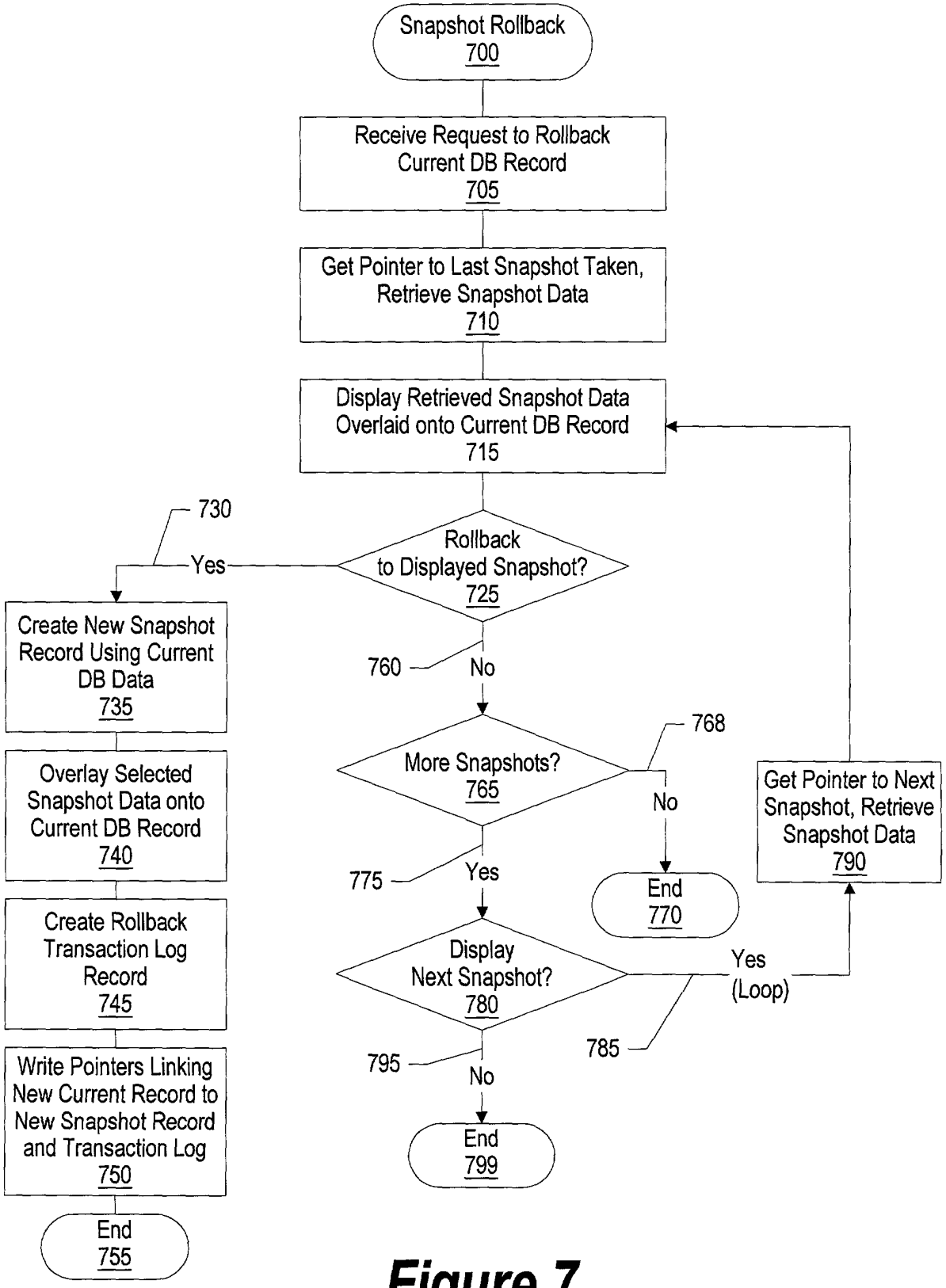
Snapshot Rollback
700
Receive Request to Rollback Current DB Record
705
Get Pointer to Last Snapshot Taken, Retrieve Snapshot Data
710
Display Retrieved Snapshot Data Overlaid onto Current DB Record
715
Rollback to Displayed Snapshot?
725
730
Yes
No
760
Create New Snapshot Record Using Current DB Data
735
Overlay Selected Snapshot Data onto Current DB Record
740
Create Rollback Transaction Log Record
745
Write Pointers Linking New Current Record to New Snapshot Record and Transaction Log
750
End
755
More Snapshots?
765
768
No
End
770
775
Yes
Display Next Snapshot?
780
Yes (Loop)
785
Get Pointer to Next Snapshot, Retrieve Snapshot Data
790
795
No
End
799

Figure 7

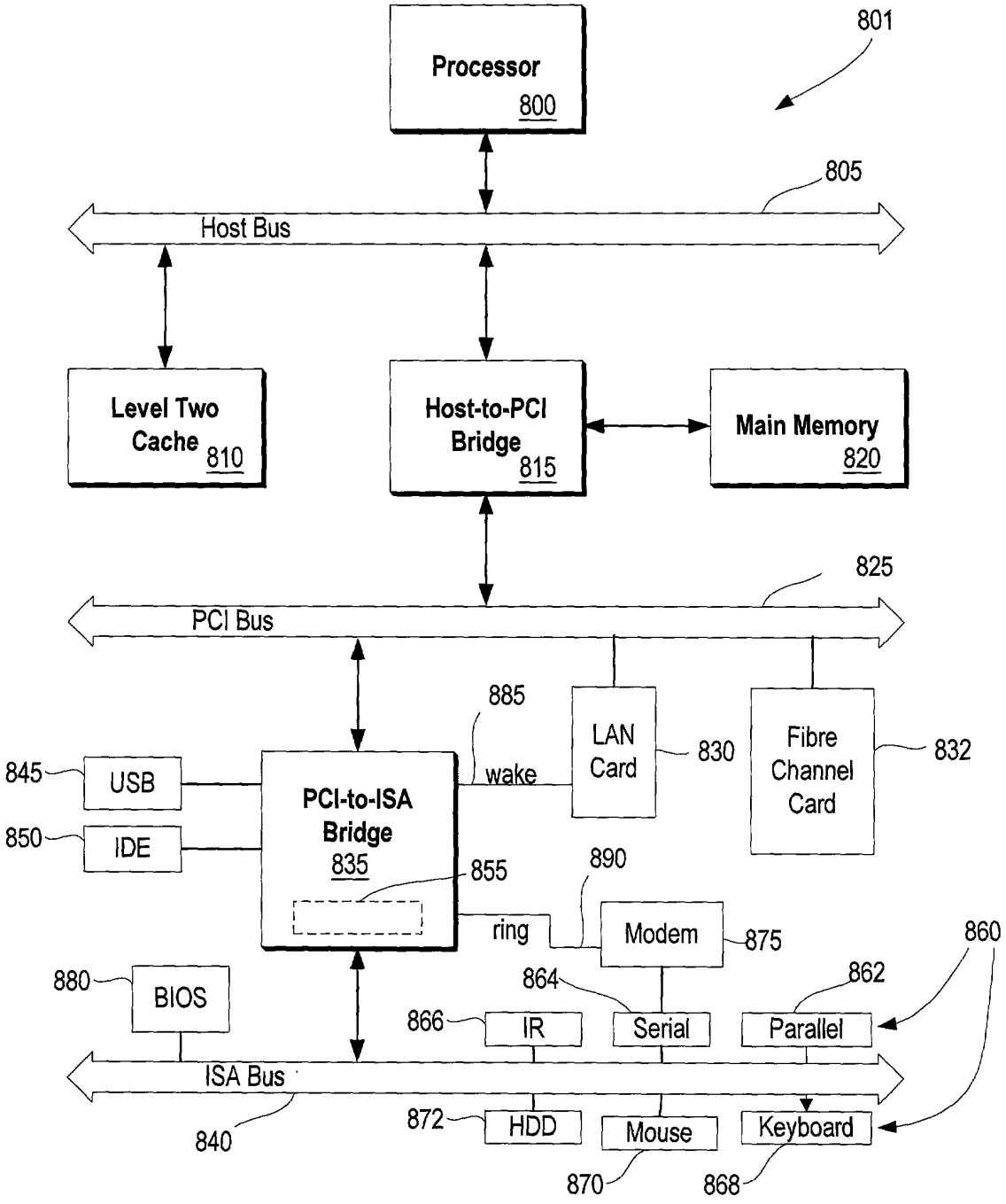
801
Processor
800
805
Host Bus
Level Two
Cache
810
Host-to-PCI
Bridge
815
Main Memory
820
825
PCI Bus
885
LAN
Card
830
Fibre
Channel
Card
832
845
USB
wake
PCI-to-ISA
Bridge
835
850
IDE
855
890
ring
Modem
875
860
880
BIOS
864
862
866
IR
Serial
Parallel
ISA Bus
840
872
HDD
Mouse
Keyboard
870
868

Figure 8